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1:37 pm, Mar 27, 2008

Alameda County Environmental Health 5900 Hollis Street, Suite A, Emeryville, Calfornia 94608 Telephone: 5104200700 Facsimile: 5104209170 www.CRAworld.com

March 18, 2008

Mr. Steven Plunkett Alameda County Health Care Services Agency 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

Re: Request for Review and First Quarter 2008 Monitoring Report

Former Olympic Service Station 1436 Grant Avenue San Lorenzo, California Alameda County RO #373

Dear Mr. Plunkett:

Conestoga-Rovers & Associates, Inc. (CRA) prepared this monitoring report for the site referenced on behalf of George Jaber of Encinal Properties. The site is a former Olympic Service Station that currently operates as San Lorenzo Auto Repair located at 1436 Grant Avenue in San Lorenzo (Figure 1). From 1999 to 2002 soil and groundwater assessments were completed and five quarterly groundwater monitoring and sampling events were conducted during 1999 and 2000. Alameda County Environmental Health Department (ACEHD) requested to reinstate the groundwater monitoring program at the site in a letter dated December 4, 2006. The property is owned by Mr. George Jaber of Encinal Properties and Mr. Tony Malonzo operates the auto repair shop at the site. Commercial properties are located south and southwest of the site. A school is located north of the site. The remainder of the surrounding area properties are residential homes.

On July 10, 1998, four steel, single-walled underground storage tanks (USTs) were removed from the site: one 10,000-gallon gasoline UST, one 8,000-gallon gasoline UST; one 5,000-gallon diesel UST; and one 250-gallon used-oil UST (Figure 2). Six dispensers located on two islands north of the auto repair building were also removed. First quarter 2008 activities are summarized below.

FIRST QUARTER 2008 ACTIVITIES

On February 1, 2008, Muskan Environmental Sampling (Muskan) monitored and sampled groundwater in wells MW-1, MW-2 and MW-3 (Figure 2). Monitoring well construction details are presented in Table 1. Groundwater monitoring and analytical data are summarized in Table 2. The associated field data sheets are presented as Attachment A. The laboratory analytical report is presented as Attachment B. CRA's standard operating procedures for groundwater monitoring and sampling are presented as Attachment C.



This quarter, groundwater was approximately 5.25 to 5.71 feet below top of casing and flowed toward the west-southwest at a gradient of approximately 0.003 ft/ft (Figure 2). As shown by the rose diagram on Figure 2, the first quarter 2007 through first quarter 2008 groundwater flow direction has been consistently toward the west-southwest.

No total petroleum hydrocarbons as gasoline (TPHg) or TPH as diesel (TPHd) were detected. No benzene, toluene, ethylbenzene, or xylenes (BTEX) were detected. Methyl-tertiary butyl ether (MTBE) was detected in wells MW-1, MW-2 and MW-3 at concentrations of 110 μ g/l, 3.3 μ g/l, and 97 (μ g/l), respectively. CRA recommends continued groundwater monitoring to monitor petroleum hydrocarbon concentration trends, as site delineation continues.

During the last five sampling events, no TPHd, fuel oxygenates, other than MTBE, or lead scavengers have been detected. Therefore, CRA requests that the suite of analytical analyses be reduced. We recommend that samples be analyzed for TPHg by EPA Method 8015C, BTEX by EPA Method 8021C, and MTBE by EPA Method 8260B. This change in analyses will reduce the quarterly monitoring costs and will provide lower detection limits for the BTEX compounds. Please contact us if this reduction in analyses is acceptable.

ACTIVITIES PLANNED FOR THE SECOND QUARTER OF 2008

Muskan will monitor and sample all wells at the site. CRA will prepare a table summarizing the groundwater monitoring and sampling data and a potentiometric map that will be submitted in a monitoring report along with the field data sheets, standard operating procedures, and the laboratory analytical report.

CRA formerly Cambria Environmental Technology, Inc. submitted the *Site Assessment and Preferential Pathway Study Workplan* to ACEHD on March 2, 2007. On May 31, 2007, CRA submitted the *Site Assessment Workplan Addendum*, requested by the ACEHD. On September 28, 2007, CRA submitted the *Site Assessment Workplan Addendum 2*, requested by the ACEHD. We received approval of this scope of work in a ACEHD letter dated January 22, 2008. CRA has completed the approved field work and will report the results prior to the April 30, 2008 extended deadline.



CLOSING

We appreciate this opportunity to work with you on this project. Please call Brandon Wilken at (510) 420-3355 if you have any questions or comments.

Conestoga-Rovers & Associates, Inc. (CRA) prepared this document for use by our client and appropriate regulatory agencies. It is based partially on information available to CRA from outside sources and/or in the public domain, and partially on information supplied by CRA and its subcontractors. CRA makes no warranty or guarantee, expressed or implied, included or intended in this document, with respect to the accuracy of information obtained from these outside sources or the public domain, or any conclusions or recommendations based on information that was not independently verified by CRA. This document represents the best professional judgment of CRA. None of the work performed hereunder constitutes or shall be represented as a legal opinion of any kind or nature.

Sincerely,

Conestoga-Rovers & Associates, Inc.

For Bryan A. Fong Staff Geologist

Figures:

Brandon S. Wilken, P.G. Senior Project Geologist

Branda & With

1 – Vicinity Map

2 – Groundwater Elevation and Hydrocarbon Concentration Map

Tables: 1 – Well Construction Details

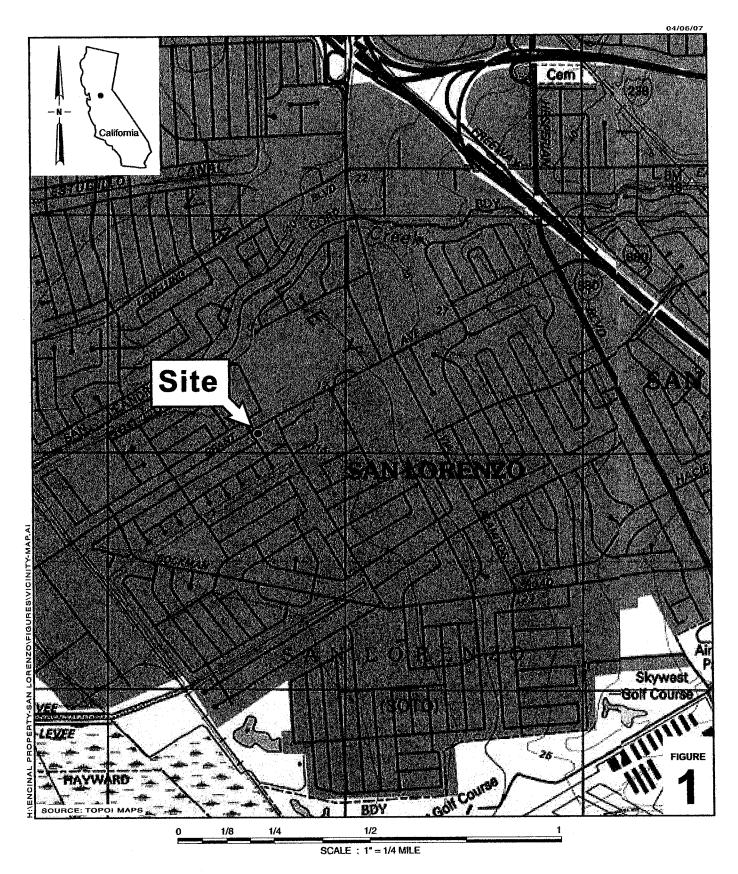
2 – Groundwater Monitoring and Analytical Data

Attachments: A – Field Data Sheets

B – Laboratory Analytical ReportC – Standard Operating Procedures

Cc: Mr. George Jaber, Encinal Properties, 2801 Encinal Avenue, Alameda, CA 94501-4726

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Olympic Service Station

1436 Grant Avenue San Lorenzo, California



Vicinity Map

Groundwater Elevation Contour and Hydrocarbon Concentration Map February 1, 2008

Olympic Service Station 1436 Grant Avenue San Lorenzo, California

Table 1. Monitoring Well Construction Details - Encinal Properties, Former Olympic Service Station, 1436 Grant Avenue, San Lorenzo, California

Well ID	Date Installed	Borehole diameter (in)	Depth of borehole (ft)	Casing diameter (in)	Screened interval (ft bgs)	Slot Size (in)	Filter Pack (ft bgs)	Bentonite seal (ft bgs)	Cement (ft bgs)	TOC elevation (ft above msl)
			-	· · · · · · · · · · · · · · · · · · ·				· ·		
MW-1	9/24/1999	8	26.5	2	5-26.5	0.020	3.5-26.5	3-3.5	1.5-3	15.71
MW-2	9/24/1999	8	20.0	2	5-20	0.020	3.5-20	3-3.5	1.5-3	15.17
MW-3	9/24/1999	8	21.5	2	5-21	0.020	3.5-21.5	3-3.5	1.5-3	15.13

Abbreviations / Notes

ft = feet

in = inches

ft bgs = feet below grade surface

ft above msl = feet above mean sea level

TOC = top of casing

TOC elevations were surveyed on March 8, 2007 by Virgil Chavez Land Surveying.

Table 2. Groundwater Analytical Data - Encinal Properties, Former Olympic Service Station, 1436 Grant Avenue, San Lorenzo, California

Well ID	Date	DTW	GWE	Oil &	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	SVOCs & HVOCs	DIPE	TAME	ETBE	TBA	Ethanol	EDB	1,2- DCA	Notes
TOC	Sampled	(ft)	(ft above msl)	Grease					Concent	rations in micro	orams ner li	iter (ug/L)									
(ft above m		•	·						Concent	radous in inicro	grains per in	iter (µg/15)							-		
	undwater Sam	•				2,100	3,600	350	130	39	380	17,000									
Pit Water	9/13/1998		-		 -100	<100	180	<0.50	<0.50	8.8	<0.50	82		< 0.50	< 0.50	< 0.50	<5.0				
BH-A	4/30/2002	17/8			<100	<200	2,300	120	11	60	150	2,000		<5.0	<5.0	<5.0	<50				
ВН-В	4/30/2002	16/8			<100	<150	1,200	. 57	0.72	43	87	240		< 0.50	1.0	< 0.50	<5.0				
вн-с	4/30/2002	16/8			<100	~130	1,200	. 31	0.72	43	07	. 240		10.50	***						
Quarterly (Groundwater	Samples																	•		
MW-1	10/6/1999	8.35	6.65		-	84	3,900	<25	<25	<25	<25	3,500		-						-	*
15.00	1/13/2000	7.90	7.10			<50	<1,300	18	<13	<13	<13	1,700		-		• •			'	-	
	4/12/2000	7.08	7.92			56	<1,000	66	<10	<10	<10	1,600					•••			-	*.
	7/19/2000	7.66	7.34		-	52	<1,000	<10	<10	<10	<10	1,200		-							*
	10/25/2000	7.91	7.09		-	76	4,100	120	<25	<25	<25	6,100									*
	2/16/2007	6.32	8.68								-				 .				-		
	3/1/2007	5.88	9.12		<250	<50	<50	<1.2	<1.2	<1.2	<1.2	78		<1.2	<1.2	<1.2	<12	<120	<1.2	<1.2	*
15.71	5/1/2007	7.24	8.47		<250	<50	<50	<5.0	<5.0	<5.0	<5.0	250		<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
	8/1/2007	7.77	7.94		-	<50	<50	<25	<25	<25	<25	520	·	<25	<25	<25	<250	<2500	<25	<25	*
	11/1/2007	7.71	8.00		<u></u>	<50	<50	<12	<12	<12	<12	460		<12	<12	<12	<120	<1,200	<12	<12	
	2/1/2008	5.71	10.00			<50	<50	<2.5	<2.5	<2.5	<2.5	110		<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	*
MW-2	10/6/1999	7.87	6.59	<1,000	<500	<50	70	< 0.5	<0.5	<0.5	<0.5	11	ND		- :	-		***			•
14.46	1/13/2000	7.46	7.00	<1,000	<500	<50	<50	<0.5	<0.5	<0.5	<0.5	6.2	ND	_						-	
	4/12/2000	6.67	7.79	1,100	<500	<50	<50	<0.5	<0.5	<0.5	<0.5	39			-	-					
	7/19/2000	7.23	7.23	1,300	<500	<50	<1,000	<10	<10	<10	<10	990			-	'			-		
	10/25/2000	7.52	6.94		<500	<50	370	<2.5	<2.5	<2.5	<2.5	690							-	·	
1.0	2/16/2007	5.89	8.57												-						
	3/1/2007	5.45	9.01	·	<250	<50	<50	< 0.5	<0.5	<0.5	<0.5	9.8		<0.5	<0.5	<0.5	<5.0	<50	<0.5	<0.5	
15.17	5/1/2007	6.83	8.34		<250	<50	<50	<5.0	<5,0	<5.0	<5.0	120		<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
	8/1/2007	7.35	7.82			<50	<50	<5.0	<5.0	<5.0	<5.0	130		<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	•
	11/1/2007	7.27	7.90			<50	<50	<0.5	<0.5	<0.5	<0.5	19		<0.5	<0.5	<0.5	<5.0	<50	<0.5	<0.5 <0.5	
	2/1/2008	5.25	9.92		-	<50	<50	<0.5	<0.5	<0.5	<0.5	3.3		<0.5	<0.5	<0.5	<2.0	<50	<0.5	<0.5	
	********	5.00				300	3,900	900	89	160	560	790	. <u></u>		_		·				
MW-3	10/6/1999	7.90	6.51			210	740	110	4.8	35	18	290							-		
14.41	1/13/2000	7.50	6.91			640	2,200	650	9.7	180	24	140			_		·				
1 .	4/12/2000	6.61	7.80			270	2,700	420	<2.5	160	<2.5	99					·	·			*
	7/19/2000	7.24	7.17			150	710	180	<2.5	24	<2.5	71					·				*
	10/25/2000	7.52	6.89		-	130	710			2											
	2/16/2007	5.90	8.51		 <250	<50	82	20	<1.7	<1.7	<1.7	100		<1.7	<1.7	<1.7	<17	<170	<1.7	<1.7	*
	3/1/2007	5.44	8.97		<250 <250	<50 <50	. <50	<5,0	<5.0	<5.0	<5.0	88		< 5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
15.13	5/1/2007	6.87	8.26		<230	<50	130	12	<2.5	<2.5	<2.5	98		<2.5	<2.5	<2.5	<25	<250	<2.5	<2.5	*
	8/1/2007	7.40	7.73			<50	77	<2.5	<2.5	<2.5	<2.5	68		<2.5	<2.5	<2.5	<25	<250	<2.5	<2.5	*
	11/1/2007	7.35	7.78			< 50 -	< 50	<2.5	<2.5	<2.5	<2.5	97		<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	
	2/1/2008	5.28	9.85	_	-	\30 .	~30	-2.3	-4.5	-2.0											

Table 2. Groundwater Analytical Data - Encinal Properties, Former Olympic Service Station, 1436 Grant Avenue, San Lorenzo, California

						777.5												·	EDD	10 001	XY-4
Well ID	Date	DTW	GWE	Oil &	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xvlenes	MTBE	SVOCs &	DIPE	TAME	ETBE	TBA	Ethanol	EDB	1,2- DCA	Notes
Well ID	Date	DIW	GWE	Oil &	1111110	11114	11116	Deliberie	10140110	20171001110	,										
TO C	C1 - J	(ft)	(ft above msl)	Grease									HVOCs								
TOC	Sampled	(11)	(11 above msi)	Olcase																	
10. 1	*1			4					Concent	rations in micro	rrams ner li	ter (ng/L)								—→	
(ft above m.	Si)								COHCCIA	ladons in intero	Julio per h	tor (HD/L)									

Abbreviations / Notes

TOC = Top of casing

DTW = Depth to water

GWE = Groundwater elevation in feet above mean sea level

ft above msl = feet above mean sea level

17/8 = Depth to first encountered groundwater/depth of static groundwater

<n = Not detected above laboratory reporting limit

-- = Not sampled, not analyzed, not available

Oil and grease by EPA Method 5520 E&F

TPHd = Total Petroleum Hydrocarbons as diesel range by EPA Method 8015

TPHg = Total Petroleum Hydrocarbons as gasoline range by EPA Method 8015

TPHmo = Total Petroleum Hydrocarbons as motor oil by EPA Method 8015

Benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020

MTBE = Methyl tertiary butyl ether by EPA Method 8260

Di-isopropyl ether (DIPE), tertiary-amyl methyl ether (TAME), ethyl tertiary-butyl ether (ETBE), tertiary-butyl alcohol (TBA) by EPA Method 8260B

SVOCs = Semi-volatile organic compounds by EPA Method 8270, refer to corresponding analytical laboratory report for a full list of compounds

HVOCs = Halogenated volatile organic compoundy by EPA Method 8010, refer to corresponding analytical laboratory report for a full list of compounds

* = See Analytical Laboratory Report for laboratory sample description and TPH chromatogram interpretation.

TOC elevations were surveyed on March 8, 2007 by Virgil Chavez Land Surveying. Prior to this date, TOC elevation were relative to a project datum determined by Aqua Science Engineers, Inc. in 1998.



ATTACHMENT A

Field Data Sheets

DAILY REPORT

Client:	Conestoga-Rovers and Associates
Project:	Encinal Properties
Site Address:	1436 Grant Avenue, San Lorenzo, CA
Date:	2/1/2008
Time	Activity
7:45 AM	Arrived onsite
8:00 AM	Opened all wells
8:35 AM	Began gauging wells
8:55 AM	Began sampling wells
10:15 AM	Finished sampling wells
10:25 AM	Called BF and updated him about the sampling event
10:35 AM	Left site
11:40 AM	Samples taken to McCampbell Analytical INC
1. 1	

CRA Projec	ct Nu	mbei	r:	<u> </u>	329100				Site Name: Encinal Properties		Encinal Properties				
Person Mal	king	Obse	ervation	ns: S	Sanjiv (3ill							rvations	s: <u>2</u>	2/1/2008
			E dika	of abstract of	Lings of the state						a special spec	Oute str	the box	Welling &	Motes (Attach extra sheets if necessary.)
Well ID	/	\.P	CCEST V	Melley 3.5	olls II. A.P	inper 5.		287 1.	OMOL S.	Mater 9	CHOOSE N	Orte	Well	Melli	Notes (Attach extra sheets if necessary.)
MW-1	1 V	Ì	1	1	,	V	V	√		1	٧	1	1		☐ Photograph provide
MW-2	1		1	1	٧	٧	٧	1		1	1	٧	1		☐ Photograph provide
MW-3	1		٧	1	V	٧	V	√		√	٧ .	1	1		☐ Photograph provide
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<u>Legend</u>: √ = Yes, wellhead <u>meets quality standar</u>d.

No = No, wellhead does not meet quality standard, needs correction (if necessary, use notes to clarify).

© = Quality standard not met, but corrected during site visit.

DRUM INVENTORY

· · · · · · · · · · · · · · · · · · ·					
Client:	Conestoga-Rovers and Associates				
Project:	Encinal Properties				
Site Address:	1436 Grant Avenue, San Lorenzo, CA				
Date:	2/1/2008				:
ARRIVAL		Amount	SPH	Soil	Water
COMMENTS (color, to	ype, label markings, location etc.): No	FULL			
drums onsite.		3/4			
		2/3			
		1/2			
		1/3			
		1/4			
•		>0,<1/4			
•					
				-	
DEPARTURE		Amount	SPH	Soil	Water
COMMENTS (color, t	ype, label markings, location etc.): One	FULL			
	rum with non haz purge water nera well MW-	3/4			
1 in the back of the bu		2/3			
	3	1/2			1
		1/3			
		1/4		T	
		>0,<1/4			
		TOTAL			1

WELL GAUGING SHEET

Client:	Conestoga-F	Rovers and A	ssociates	,	·	
Site Address:		Avenue, San		A		
Date:	2/1/2008			Signature:		
Well ID	Time	Depth to SPH	Depth to Water	SPH Thickness	Depth to Bottom	Comments
MW-1	8:45		5.71		24.37	
MW-2	8:35		5.25		19.36	
MW-3	8:40		5.28		19.06	

WELL SAMPLING FORM

Dotos		2/1/2008						
Date:								<u></u>
Client:		onestoga-Ro						<u> </u>
Site Address		1436 Grant A	Avenue, Sa	n Lorenzo	o, CA			
Well ID:		MW-1						
Well Diamet	er: 2	2"			· · · · · · · · · · · · · · · · · · ·		<u> </u>	· · · · · · · · · · · · · · · · · · ·
Purging Dev	ice:]	Disposable I	Bailer					·
Sampling Mo	ethod:	Disposable I	Bailer	•				· .
Total Well D	epth:	· · · · · · · · · · · · · · · · · · ·	-	24.37	Fe=	mg/L		
Depth to Wa	ter:			5.71	ORP=	mV	·	· _;
Water Colum	nn Height			18.66	DO=	mg/L		
Gallons/ft:				0.16				
1 Casing Vo	lume (gal`):		2.99	COMME	NTS:		
3 Casing Vo				8.96	very turbio	d, very silty		
	CASING OLUME (gal)	TEMP (Celsius)	pН	COND. (μS)				
10:00	3.0	18.3	7.21	1686				
10:05	6.0	18.5	7.23	1692				
10:10	9.0	18.9	7.22	1700	_			
10.10	2.0	10.2	1.22	1700	1			
Sample ID: Sample	ample Da	te:	Sample Time:	Containe	er Type	Preservative	Analytes	
MW-1	2/1/2	2008	10:15	40 ml VC Amber	OA, 1 L	HCl, ICE	TPHg TPHd 9 Oxy's	8015 with silica gel clean up 8021, 8260
							OAys	
					÷ .			
						Signatu	ıra•	

WELL SAMPLING FORM

Date: Client: Site Address: Well ID: Well Diameter: Purging Device: Sampling Method Total Well Depth:		Avenue, Sa Bailer					
Site Address: Well ID: Well Diameter: Purging Device: Sampling Method Total Well Depth:	1436 Grant . MW-2 2" Disposable Disposable	Avenue, Sa Bailer	n Lorenzo				
Well ID: Well Diameter: Purging Device: Sampling Method Total Well Depth:	MW-2 2" Disposable Disposable	Bailer		, 071			
Well Diameter: Purging Device: Sampling Method Total Well Depth:	2" Disposable Disposable		19.36				
Purging Device: Sampling Method Total Well Depth:	Disposable		10.36				
Sampling Method Total Well Depth:	Disposable		10.36				
Total Well Depth:			10.36				
			17,50	Fe=	mg/L		
Depth to Water:			5.25	ORP=	mV		
Water Column He	ight:		14.11	DO=	mg/L		
Gallons/ft:			0.16				
1 Casing Volume	(gg1):		2.26	COMME	NTS.	5	
3 Casing Volumes	·	·	6.77	-1	d, very silty		
CASIN VOLUME (gal)	IG ME TEMP	pН	COND.				
9:00 2.3	18.7	7.19	1313	1			
9:05 4.5		7.19	1337				
9:10 6.8		7.11	1318				
Sample ID: Sample	e Date:	Sample Time:	Containe	er Type	Preservative	Analytes	
MW-2	2/1/2008	9:15	40 ml VC Amber	OA, 1 L	HCl, ICE	TPHg TPHd -9 Oxy's	8015 with silica gel clean up, 8021, 8260
						Jonys	
					Signatu	· (

WELL SAMPLING FORM

	2/1/2008	-	.	· · · · ·			
(Conestoga-R	overs and.	Associates	}			
ess:	1436 Grant A	Avenue, Sa	an Lorenzo	o, CA	·		
	MW-3						
eter:	2"	·			· · · · · · · · · · · · · · · · · · ·		
evice:	Disposable l	Bailer				<u> </u>	
Method:	Disposable	Bailer		· .			
Depth:			19.06	Fe=	mg/L	· · · · · · · · · · · · · · · · · · ·	
Vater:			5.28	ORP=	mV		
umn Height	:		13.78_	DO=	mg/L		
			0.16				
Volume (gal):		2.20	СОММЕ	NTS:		
	,		6.61	very turbi	d, silty		
CASING VOLUME	TEMP (Celsius)	ηН	COND.				
							•
6.6	18.9	7.20	1299				
		·	<u> </u>				
Sample Da	ite:	Sample Time:	Containe	er Type	Preservative	Analytes	
2/1/	2008	9:45	40 ml VO Amber	OA, 1 L	HCI, ICE	TPHd	8015 with silica gel clean up, 8021, 8260
*				· · · · · ·			
					Signatu	re:	
	eter: evice: Method: Depth: Vater: umn Height Volume (gal Volumes (ga CASING VOLUME (gal) 2.2 4.4 6.6 Sample Da	eter: 2" evice: Disposable I Method: Disposable I Depth: Vater: umn Height: CASING VOLUME (gal): (Celsius) 2.2 18.9 4.4 18.9 6.6 18.9 Sample Date: 2/1/2008	Conestoga-Rovers and ess: 1436 Grant Avenue, Sample Date: Conestoga-Rovers and MW-3 Ess: 1436 Grant Avenue, Sample Sample Date: 1436 Grant Avenue, Sample Sample Sample Date: 1436 Grant Avenue, Samwa MW-3 1436 Gra	Conestoga-Rovers and Associates MW-3 eter: 2" evice: Disposable Bailer Method: Disposable Bailer Depth: 19.06 Vater: 5.28 umn Height: 13.78 0.16 Volume (gal): 2.20 Volumes (gal): 6.61 CASING VOLUME (gal) (Celsius) pH (µS) 2.2 18.9 7.21 1240 4.4 18.9 7.22 1261 6.6 18.9 7.20 1299 Sample Date: Containe Value (Sample Time: Containe) Sample Time: Containe 40 ml VO	Conestoga-Rovers and Associates 1436 Grant Avenue, San Lorenzo, CA MW-3 eter: 2" evice: Disposable Bailer Method: Disposable Bailer Depth: 19.06 Fe= Vater: 5.28 ORP= umn Height: 13.78 DO= Volume (gal): 2.20 COMME Volumes (gal): 6.61 CASING VOLUME (TEMP (Gal) (Celsius) pH (µS) 2.2 18.9 7.21 1240 4.4 18.9 7.22 1261 6.6 18.9 7.20 1299 Sample Date: Container Type 40 ml VOA, 1 L Amber	Conestoga-Rovers and Associates	Conestoga-Rovers and Associates



ATTACHMENT B

Laboratory Analytical Report

McCampbell At		1534 Willow Pass Road, Pittsburg, CA 94565-1701 Web: www.mccampbell.com E-mail: main@mccampbell.com Telephone: 877-252-9262 Fax: 925-252-9269				
Conestoga-Rovers & Associates	Client Project ID: #62910		Date Sampled: 02/01/08			
5900 Hollis St, Suite A	Properties-Former Olympi	c Station	Date Received:	02/01/08		
T	Client Contact: Brandon	Wilken	Date Reported:	02/07/08		
Emeryville, CA 94608	Client P.O.:		Date Completed:	02/07/08		

WorkOrder: 0802020

February 07, 2008

Dear Brandon:

Enclosed within are:

- 1) The results of the 3 analyzed samples from your project: #629100; Encinal Properties-Former
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius Laboratory Manager

McCampbell Analytical, Inc.

nete 0802-020

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McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD PITTSBURG, CA 94565-1701

Website: www.mccampbeil.com Email: main@mccampbeil.com Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

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THUNN	3. 273	F 1 T 1 T		MMR.
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RUSH 24 HR

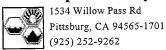
48 HR 72 HR 5 DAY

GeoTracker EDF № PDF □ Excel □ Write On (DW) □

Check if sample is effluent and "J" flag is required Comments Bill To: (DOESTING) - DOVES PASSY WAYES Analysis Request Other Report To: Paralla Company: Filter Samples E-Mail: W. KOAGERALDA ALCONO for Metals Tatal Petroleum Oil & Gream (1664 / 5530 Tele: (5)0)4%analysis: Yes / No Project Name: 4545 Project#: (AAN) Z(e,z)Project Location: 1436 Sampler Signature: Min & Kows SAMPLING Type Containers MATRIX PRESERVED Containers LOCATION/ SAMPLE ID Field Point HNO Sile Name Time Date 2 2408 10:15 9:45 COMMENTS: KEN OO Relinqui**dú** d'Dy: Lime: Received In: 2/16 HEAD SPACE ABSENT - V DECELORINATED IN LAW Received By? Date: Time: Reimanished By: APPROPRIATE CONTAINERS PRESERVED IN LAB Received By: Date: Time: Religquished By: VOAS ONG METALS OTHER

PRESERVATION

McCampbell Analytical, Inc.



CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0802020 ClientID: CETE

Fax

✓ Email

HardCopy

5 days

Report to:

Brandon Wilken

Conestoga-Rovers & Associates

5900 Hollis St, Suite A

Emeryville, CA 94608

Email:

bwilken@CRAworld.com (510) 420-0700 FAX:

FAX: (510) 420-9170

ProjectNo: #629100; Encinal Properties-Former OI

PO:

TEL:

Bill to:

Accounts Payable

Conestoga-Rovers & Associates

5900 Hollis St, Ste. A

Emeryville, CA 94608

Date Received: 02/01/2008

ThirdParty

Requested TAT:

Date Printed: 02/01/2008

				Γ	Requested Tests (See legend below)											
Sample ID	ClientSampID	Matrix	Collection Date	-lold	1	2	3	4	5	6	7	8	9	10	11	12
Sample 15								,					1	T -	г	т—
0802020-001	MVV-1	Water	2/1/08 10:15:00		Α	В	A	<u> </u>								
0802020-002	MW-2	Water	2/1/08 9:15:00 AM		A	В			<u> </u>	<u> </u>	<u> </u>					├
0802020-003	MW-3	Water	2/1/08 9:45:00 AM		Α	В			<u> </u>		<u> </u>	L		<u> </u>	l	<u> </u>

Test Legend:

1 G-MBTEX_W	2 MBTEXOXY-8260B_W	3 PREDF REPORT	4	5
6	7	8	9	10
11	12			

The following SampIDs: 001A, 002A, 003A contain testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Comments:

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Sample Receipt Checklist

Client Name:	Conestoga-Rove	rs & Associates			Date and	d Time Received:	2/1/08 1:0	1:52 PM
Project Name:	#629100; Encina	Properties-Form	er Oly	mpic St	atio Checklis	st completed and i	reviewed by:	Melissa Valles
WorkOrder N°:	0802020	Matrix <u>Water</u>			Carrier:	Client Drop-In		
		<u>Chair</u>	of Cu	stody (C	OC) Informati	ion		
Chain of custody	y present?		Yes	V	No 🗆			
Chain of custody	y signed when relinqui	shed and received?	Yes	V	No 🗆			
Chain of custody	y agrees with sample	labels?	Yes	✓	No 🗆			
Sample IDs noted	d by Client on COC?		Yes	V	No 🗆			
Date and Time o	f collection noted by C	ient on COC?	Yes	\checkmark	No 🗆			
Sampler's name	noted on COC?		Yes	✓	No 🗆			
		<u>s</u>	ample	Receipt	Information			
Custody seals in	ntact on shipping conta	ainer/cooler?	Yes		No 🗆		NA 🗹	
Shipping contain	ner/cooler in good cond	dition?	Yes	V	No 🗆			
Samples in prop	per containers/bottles?		Yes	V	No 🗆			
Sample containe	ers intact?		Yes	\checkmark	No 🗆			
Sufficient sampl	le volume for indicated	test?	Yes	V	No 🗆			
		Sample Prese	ervatio	n and Ho	old Time (HT)	<u>Information</u>		
All samples rece	eived within holding tin	ne?	Yes	✓	No 🗆			
Container/Temp	Blank temperature		Cool	er Temp:	6.6°C		NA 🗆	
Water - VOA via	als have zero headsp	ace / no bubbles?	Yes	\checkmark	No 🗆	No VOA vials sub	mitted 🗆	
Sample labels of	checked for correct pre	eservation?	Yes	✓	No 🔲			
TTLC Metal - ph	Hacceptable upon rece	eipt (pH<2)?	Yes		No 🗆		NA 🗹	
			==:				====	
Client contacted	d:	Date conta	cted:			Contacte	ed by:	



McCampbell Analytical, Inc.

"When Ouality Counts"

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Conestoga-Rovers & Associates	1 ,	Date Sampled: 02/01/08
5900 Hollis St, Suite A	Properties-Former Olympic Station	Date Received: 02/01/08
Emeryville, CA 94608	Client Contact: Brandon Wilken	Date Extracted: 02/04/08-02/08/08
	Client P.O.:	Date Analyzed 02/04/08-02/08/08

	Gasoline Ra	ange (C6-C12) Volatile I	Hydrocarbons as Gasoline*		
Extraction method SW5	030B	Analytical method	s SW8015Cm	Work Order: 08	02020
Lab ID	Client ID	Matrix	TPH(g)	DF	% SS
001A	MW-1	w	ND,i	1	115
002A	MW-2	w	ND,i	1	94
003A	MW-3	w	ND	1	90
					<u> </u>
	ing Limit for DF =1;	W	50	ļ	ıg/L
	ans not detected at or	S	NA		NA

Reporting Billit for B1 1,	VV	50	μg/L
ND means not detected at or	C	NΑ	N/A
above the reporting limit	٥	NA	IVA

^{*} water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

[#] cluttered chromatogram; sample peak coelutes with surrogate peak.

⁺The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request; p) see attached narrative.

McCampbell Analytical, Inc. "When Quality Counts"

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Conestoga-Rovers & Associates	Client Project ID: #629100; Encinal	Date Sampled: 02/01/08
5900 Hollis St, Suite A	Properties-Former Olympic Station	Date Received: 02/01/08
Emeryville, CA 94608	Client Contact: Brandon Wilken	Date Extracted: 02/05/08
	Client P.O.:	Date Analyzed: 02/05/08

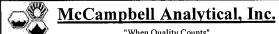
	Oxygen	ates and BTEX b	y GC/MS*		-
Extraction Method: SW5030B	Anal	ytical Method: SW826	0B	Work Order:	0802020
Lab ID	0802020-001B	0802020-002B	0802020-003B		
Client ID	MW-1	MW-2	MW-3	Reporting DF	
Matrix	W	W	W	Dr -	-1
DF	5	1	. 5	S	W
Compound		Conc	entration	ug/kg	μg/L
tert-Amyl methyl ether (TAME)	ND<2.5	ND	ND<2.5	NA	0.5
Benzene	ND<2.5	ND	ND<2.5	NA	0.5
t-Butyl alcohol (TBA)	ND<10	ND	ND<10	NA	2.0
1,2-Dibromoethane (EDB)	ND<2.5	ND	ND<2.5	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<2.5	ND	ND<2.5	NA	0.5
Diisopropyl ether (DIPE)	ND<2.5	ND	ND<2.5	NA	0.5
Ethanol	ND<250	ND	ND<250	NA	50
Ethylbenzene	ND<2.5	ND	ND<2.5	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<2.5	ND	ND<2.5	NA	0.5
Methyl-t-butyl ether (MTBE)	110	3.3	97	NA	0.5
Toluene	ND<2.5	ND	ND<2.5	NA	0.5
Xylenes	ND<2.5	ND	ND<2.5	NA	0.5
	Sur	rogate Recoverie	s (%)		
%SS1:	109	110	111		
%SS2:	102	104	96		
%SS3:	89	90	89		
Comments	i	i			

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

[#] surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.



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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Conestoga-Rovers & Associates	Client Project ID: #629100; Encinal	Date Sampled: 02/01/08
5900 Hollis St, Suite A	Properties-Former Olympic Station	Date Received: 02/01/08
Emeryville, CA 94608	Client Contact: Brandon Wilken	Date Extracted: 02/01/08
	Client P.O.:	Date Analyzed 02/01/08-02/02/08

Diesel Range (C10-C23) Extractable Hydrocarbons with Silica Gel Clean-Up*

Extraction method SW35	10C/3630C	Analytical metho	Analytical methods SW8015C		Work Order: 0802020		
Lab ID	Client ID	Matrix	TPH(d)		DF	% SS	
0802020-001A	MW-1	w	ND,i	-	1	110	
0802020-002A	MW-2	w	ND,i		1	112	
0802020-003A	MW-3	W	ND	····	1	109	
_							
			-				
	-						

Reporting Limit for DF =1;	w	50	μg/L
ND means not detected at or above the reporting limit	S	NA	NA

^{*} water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

[#] cluttered chromatogram resulting in coeluted surrogate and sample peaks, or, surrogate peak is on elevated baseline, or, surrogate has been diminished by dilution of original extract/matrix interference.

⁺The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern, c) aged diesel? is significant); d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit; p) see attached narrative.

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0802020

EPA Method: SW8021B/8015Cm	Extraction: SW5030B				BatchID: 33571			Sp	Spiked Sample ID: 0802023-002A			
Analyte	Sample Spiked MS		MSD	MS-MSD LCSL	CSD	LCS-LCSD	Acceptance Criteria (%))		
	μg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)	ND	60	105	111	5.60	105	107	2.53	70 - 130	30	70 - 130	30
мтве	ND	10	92.5	98.9	6.72	100	99.2	0.999	70 - 130	30	70 - 130	30
Benzene	ND	10	93.8	93.1	0.761	93.4	96.4	3.12	70 - 130	30	70 - 130	30
Toluene	ND	10	94.3	94.3	. 0	93.6	96.4	2.87	70 - 130	30	70 - 130	30·
Ethylbenzene	ND	10	99.4	98.5	0.894	98.4	99.7	1.32	70 - 130	30	70 - 130	30
Xylenes	ND	30	110	110	0	110	110	0,	70 - 130	30	70 - 130	30
%SS:	106	10	90	90	0	90	92	2.31	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

BATCH 33571 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0802020-001A	02/01/08 10:15 AN	02/04/08	02/04/08 10:55 AN	0802020-001A	02/01/08 10:15 AN	02/08/08	02/08/08 4:29 AM
0802020-002A	02/01/08 9:15 AN	v 02/04/08	02/04/08 2:47 PN	0802020-003A	02/01/08 9:45 AM	02/05/08	02/05/08 8:30 PN
0802020-003A	02/01/08 9:45 AN	v 02/08/08	02/08/08 4:59 AN				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

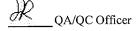
% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND cont significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.



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Web: www.mccampbell.com E-mail: main@mccampbell.com

Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0802020

EPA Method SW8015C Extraction SW3510C/3630C				BatchID: 33533			Spiked Sample ID: N/A					
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	SD Acceptance Criteria		Criteria (%))
Analyto	µg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	101	102	1.14	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	110	111	0.670	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

BATCH 33533 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed	
0802020-001A	02/01/08 10:15 AM	02/01/08	02/01/08 9:14 PM	0802020-002A	02/01/08 9:15 AM	02/01/08	02/01/08 10:23 PM	
0802020-003A	02/01/08 9:45 AM	02/01/08	02/02/08 1:48 AM					

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

QA/QC Officer

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0802020

EPA Method SW8260B	Extra	5030B		BatchID: 33566			Spiked Sample ID: 0802031-001C					
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS LCSD		LCS-LCSD	Acceptance Criteria (%)			
Analyte	μg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	103	107	3.32	109	108	1.09	70 - 130	30	70 - 130	30
Benzene	ND	10	102	104	1.73	103	103	0	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	82.4	88.8	7.59	102	99.4	2.60	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	100	103	2.94	94.7	97.6	3.06	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	107	108	1.06	120	120	0	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	114	116	1.75	115	117	1.88	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	107	110	2.79	106	105	0.852	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	111	114	3.02	112	113	0.339	70 - 130	30	70 - 130	30
Toluene	ND	10	97.7	96.7	1.08	83.6	86.8	3.77	70 - 130	30	70 - 130	30
%SS1:	109	10	109	108	1.07	99	98	1.39	70 - 130	30	70 - 130	30
%SS2:	105	10	106	105	0.710	96	96	0	70 - 130	30	70 - 130	30
%SS3:	89	10	88	88	0	107	111	2,81	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 33566 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0802020-001B	02/01/08 10:15 AM	02/05/08	02/05/08 9:42 PM	0802020-002B	02/01/08 9:15 AM	02/05/08	02/05/08 6:47 AM
0802020-003B	02/01/08 9:45 AM	02/05/08	02/05/08 10:31 PM				

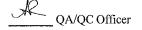
MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.





ATTACHMENT C

Standard Operating Procedures

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR GROUNDWATER MONITORING AND SAMPLING

This document presents standard field methods for groundwater monitoring, purging and sampling, and well development. These procedures are designed to comply with Federal, State and local regulatory guidelines. CRA's specific field procedures are summarized below.

Groundwater Elevation Monitoring

Prior to performing monitoring activities, the historical monitoring and analytical data of each monitoring well shall be reviewed to determine if any of the wells are likely to contain non-aqueous phase liquid (NAPL) and to determine the order in which the wells will be monitored (i.e. cleanest to dirtiest). Groundwater monitoring should not be performed when the potential exists for surface water to enter the well (i.e. flooding during a rainstorm).

Prior to monitoring, each well shall be opened and the well cap removed to allow water levels to stabilize and equilibrate. The condition of the well box and well cap shall be observed and recommended repairs noted. Any surface water that may have entered and flooded the well box should be evacuated prior to removing the well cap. In wells with no history of NAPL, the static water level and total well depth shall be measured to the nearest 0.01 foot with an electronic water level meter. Wells with the highest contaminant concentrations shall be measured last. In wells with a history of NAPL, the NAPL level/thickness and static water level shall be measured to the nearest 0.01 foot using an electronic interface probe. The water level meter and/or interface probe shall be thoroughly cleaned and decontaminated at the beginning of the monitoring event and between each well. Monitoring equipment shall be washed using soapy water consisting of Liqui-noxTM or AlconoxTM followed by one rinse of clean tap water and then two rinses of distilled water.

Groundwater Purging and Sampling

Prior to groundwater purging and sampling, the historical analytical data of each monitoring well shall be reviewed to determine the order in which the wells should be purged and sampled (i.e. cleanest to dirtiest). No purging or groundwater sampling shall be performed on wells with a measurable thickness of NAPL or floating NAPL globules. If a sheen is observed, the well should be purged and a groundwater sample collected only if no NAPL is present. Wells shall be purged either by hand using a disposal or PVC bailer or by using an aboveground pump (e.g. peristaltic or WatteraTM) or down-hole pump (e.g. GrundfosTM or DC Purger pump).

Groundwater wells shall be purged approximately three to ten well-casing volumes (depending on the regulatory agency requirements) or until groundwater parameters of temperature, pH, and conductivity have stabilized to within 10% for three consecutive readings. Temperature, pH, and conductivity shall be measured and recorded at least once per well casing volume removed. The total volume of groundwater removed shall be recorded along with any other notable physical characteristic such as color and odor. If required, field parameters such as turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) shall also be measured prior to collection of each groundwater sample.

Groundwater samples shall be collected after the well has been purged. If the well is slow to recharge, a sample shall be collected after the water column is allowed to recharge to 80% of the pre-purging static water level. If the well does not recover to 80% in 2 hours, a sample shall be collected once there is enough groundwater in the well. Groundwater samples shall be collected using clean disposable bailers or pumps (if an operating remediation system exists on site and the project manager approves of its use for sampling) and shall be decanted into clean containers

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supplied by the analytical laboratory. New latex gloves and disposable tubing or bailers shall be used for sampling each well. If a PVC bailer or down-hole pump is used for groundwater purging, it shall be decontaminated before purging each well by using soapy water consisting of Liqui-noxTM or AlconoxTM followed by one rinse of clean tap water and then two rinses of distilled water. If a submersible pump with non-dedicated discharge tubing is used for groundwater purging, both the inside and outside of pump and discharge tubing shall be decontaminated as described above.

Sample Handling

Except for samples that will be tested in the field, or that require special handling or preservation, samples shall be stored in coolers chilled to 4° C for shipment to the analytical laboratory. Samples shall be labeled, placed in protective foam sleeves or bubble wrap as needed, stored on crushed ice at or below 4° C, and submitted under chain-of-custody (COC) to the laboratory. The laboratory shall be notified of the sample shipment schedule and arrival time. Samples shall be shipped to the laboratory within a time frame to allow for extraction and analysis to be performed within the standard sample holding times.

Sample labels shall be filled out using indelible ink and must contain the site name; field identification number; the date, time, and location of sample collection; notation of the type of sample; identification of preservatives used; remarks; and the signature of the sampler. Field identification must be sufficient to allow easy cross-reference with the field datasheet.

All samples submitted to the laboratory shall be accompanied by a COC record to ensure adequate documentation. A copy of the COC shall be retained in the project file. Information on the COC shall consist of the project name and number; project location; sample numbers; sampler/recorder's signature; date and time of collection of each sample; sample type; analyses requested; name of person receiving the sample; and date of receipt of sample.

Laboratory-supplied trip blanks shall accompany the samples and be analyzed to check for cross-contamination, if requested by the project manager.

Waste Handling and Disposal

Groundwater extracted during sampling shall be stored onsite in sealed U.S. DOT H17 55-gallon drums and shall be labeled with the contents, date of generation, generator identification, and consultant contact. Extracted groundwater may be disposed offsite by a licensed waste handler or may be treated and discharged via an operating onsite groundwater extraction/treatment system.

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